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10/648,179

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Yixin Diao

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EXAMINER

OCHOA, JUAN CARLOS

ART UNIT

PAPER NUMBER

2123

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/648,179

Applicant(s)

DIAO ET AL.

Examiner

Juan C. Ochoa

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. The amendment filed 8/14/06 has been received and considered. Claims 1–33 are presented for examination.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1–4, 7, 9–13, 16, 18–22, 26–28, 31, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Al-Hilali et al., (Al-Hilali hereinafter), U.S. Patent 6,086,618 taken in view of Jannarone, Robert J., (Jannarone hereinafter), U.S. Patent 6,216,119.

6. As to claim 1, Al-Hilali discloses a method of constructing a model representative of a resource for use in managing a service associated with the resource (see Fig. 4 and col. 9, lines 31–36), comprising the steps of: associating a resource abstract model with the resource (see Fig. 4, #102 and “transactions” in col. 10, lines 11–14), and constructing the model representative of the resource based on reduced the set of resource metrics obtained in accordance with the resource abstract model (see Fig. 4, #106, 108, and 110).

7. While Al-Hilali teaches almost all of the instant invention, Al-Hilali fails to disclose a method wherein the resource abstract model is configured to automatically determine a set of resource metrics to be used to construct a model representative of the resource such that a reduced set of resource metrics is considered.

8. Jannarone discloses a method wherein the resource abstract model is configured to automatically determine a set of resource metrics to be used to construct a model representative of the resource such that a reduced set of resource metrics is considered. (See col. 3, lines 21–34 and col. 4, lines 22–32).

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9. Al-Hilali and Jannarone are analogous art because they are both related to estimating resource usage requirements.

10. Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to utilize the multi-kernel neural network computing architecture of Jannarone in the method of Al-Hilali because Jannarone utilizes a multi-kernel array which learns and predicts simultaneously in "real time" (see col. 3, lines 43–45), and as a result, Jannarone reports an improvement over the drawbacks of conventional neural network systems and a significant advancement in neural network techniques (see col. 3, lines 45–48 and col. 7, lines 51–52).

11. As to claim 2, Al-Hilali discloses a method wherein the constructed model comprises a quantitative model (see "develop cost equations that can be used to create a model of total resource usage" in col. 9, lines 31–45).

12. As to claim 3, Al-Hilali discloses a method wherein the resource abstract model is constructed by at least one individual with expertise associated with the resource (see col. 10, lines 11–16).

13. Claim 3 has been given a broad reasonable interpretation by the Examiner. The Examiner notes that the step disclosed in (col. 10, lines 11–16) is functionally equivalent to the results produced by the step expressly claimed in Applicant's dependent claim 3. Therefore, the "product" that is produced by performing the step disclosed in dependent claim 3 is the functional equivalent of the "product" that is produced in (col. 10, lines 11–16). Although the "step" by which the end result is different, the final result for the "step" is identical.

14. As to claim 4, Al-Hilali discloses a method further comprising the step of obtaining one or more service level metrics for use in constructing the model representative of the resource (see col. 10, lines 16–20).

15. As to claim 7, Jannarone discloses a method wherein the resource is an element of an autonomic computing environment (see Fig. 1, item No. 14 and col. 16, lines 28–30).

16. As to claim 9, Al-Hilali discloses a method further comprising the step of checking the accuracy of the constructed model (see col. 14, lines 55–63).

17. As to claim 10, Al-Hilali discloses a method wherein the accuracy checking step comprises use of change point detection (see col. 14, lines 55–63).

18. As to claim 11, Al-Hilali discloses an apparatus for constructing a model representative of a resource for use in managing a service associated with the resource (see Fig. 1 and col. 5, lines 56–59), comprising: a memory (see Fig. 1, #22); and at least one processor coupled to the memory (see Fig. 1, #21) and operative to: constructing the model representative of the resource based on the reduced set of resource metrics obtained in accordance with the resource abstract model (see Fig. 4, #106, 108, and 110). Jannarone discloses automatically determining, via a resource abstract model, a set of resource metrics to be used to construct a model representative of the resource such that a reduced set of resource metrics is considered (see col. 3, lines 21–34 and col. 4, lines 22–32);

19. As to claims 12, 13, 16, 18, and 19, these claims recite an apparatus for performing the method of claims 2, 4, 7, 9, and 10. Al-Hilali discloses an apparatus (see

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Fig. 1 and col. 5, lines 56–59) for performing a method that anticipates claims 2, 4, 7, 9, and 10. Therefore, claims 12, 13, 16, 18, and 19 are rejected for the same reasons given above.

20. As to claim 20, Al-Hilali discloses an article of manufacture for constructing a model representative of a resource for use in managing a service associated with the resource, comprising a machine readable medium containing one or more programs which when executed implement (see Fig. 1, #29 and 31) the steps of: and constructing the model representative of the resource based on the reduced set of resource metrics obtained in accordance with the resource abstract model (see Fig. 4, #106, 108, and 110). Jannarone discloses automatically determining, via a resource abstract model, a set of resource metrics to be used to construct a model representative of the resource such that a reduced set of resource metrics is considered. (See col. 3, lines 21–34 and col. 4, lines 22–32).

21. As to claims 21, 22, and 26, these claims recite an apparatus for performing the method of claims 2, 4, and 9. Al-Hilali discloses a machine-readable medium (see Fig. 1, #29 and 31) for performing a method that anticipates claims 2, 4, and 9. Therefore, claims 21, 22, and 26 are rejected for the same reasons given above.

22. As to claim 27, Al-Hilali discloses a method of providing resource management services, comprising the steps of: deploying one or more resource abstract models in association with one or more resources, (see “distributed” in col. 18, lines 66–67 and col. 19, lines 1–4); based on the one or more reduced sets of resource metrics obtained in accordance with the one or more resource abstract models, constructing one or more

models representative of the one or more resources (see “equations can be implemented in a model” col. 18, lines 66–67); and using the one or more constructed models to manage the one or more resources (see col. 19, lines 4–7). Jannarone discloses a method wherein each of the one or more resource abstract models is configured to automatically determine a set of resource metrics to be used to construct a model representative of the resource such that a reduced set of resource metrics is considered. (See col. 3, lines 21–34 and col. 4, lines 22–32).

23. As to claim 28, Al-Hilali discloses a method further comprising the step of obtaining one or more service level metrics for use in constructing the one or more models representative of the one or more resources (see col. 10, lines 16–20).

24.

25. As to claim 31, Jannarone discloses a method wherein the resource is an element of an autonomic computing environment (see Fig. 1, item No. 14 and col. 16, lines 28–30).

26. As to claim 33, Al-Hilali discloses a method further comprising the step of checking the accuracy of the one or more constructed models (see col. 14, lines 55–63).

27. Claims 5, 6, 8, 14, 15, 17, 23–25, 29, 30, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Al-Hilali taken in view of Jannarone as applied to claims 1, 4, 11, 13, 20, 22, 27, and 28 above, and further in view of Hayball et al., (Hayball hereinafter), U.S. Patent 6,959,335.



28. As to claims 5 and 29, while the Al-Hilali–Jannarone method obtains one or more service level metrics for use in constructing the model representative of the resource, the Al-Hilali–Jannarone method lacks one or more service level metrics obtainable from one or more service level agreements.

29. Hayball discloses a method wherein the one or more service level metrics are obtainable from one or more service level agreements. (See col. 4, lines 34–38).

30. Al-Hilali, Jannarone and Hayball are analogous art because they are both related to estimating resource usage requirements.

31. Therefore, it would have been obvious to one of ordinary skill in this art at the time of invention by applicant to utilize the relationship of Hayball in the Al-Hilali–Jannarone method because Hayball utilizes a model of the communications network to provide the provisioning information (see col. 4, lines 24–27), and as a result, Hayball reports the following advantages: provisioning a path over a connectionless communications network, such as the internet, which has a guaranteed bandwidth and quality of service, enabling a network operator to make efficient use of a communications network and to provide differentiated services which promote efficient use of that network, and means to manage the communications network easily whilst providing several virtual leased lines and differentiated services which are otherwise complex to manage (see col. 4, lines 21–34).

32. As to claims 6 and 30, Hayball discloses a method further comprising the step of obtaining a topology of one or more resources used to deliver one or more services associated with the one or more service level agreements, including the resource for

which the model is being constructed, for use in constructing the model representative of the resource (see col. 4, lines 17–20). As per the topology definition in (application description page 7, 4th paragraph), Examiner interprets “amount of available bandwidth over said path” as minimal set of resources that may be used in service delivery and “provisioning information to provision said path” as the flows between them.

33. As to claims 8 and 32, Hayball discloses a method wherein the constructed model is useable for (i) reporting one or more service level metrics (see “policing” in col. 7, lines 34–37) and (iv) generating one or more notifications related to automated service level enforcement (see col. 24, lines 45–53).

34. As to claims 14, 15, and 17, these claims recite an apparatus for performing the method of claims 5, 6, and 8. Al-Hilali discloses an apparatus (see Fig. 1 and col. 5, lines 56–59) for performing a method that teaches claims 5, 6, and 8. Therefore, claims 14, 15, and 17 are rejected for the same reasons given above.

35. As to claims 23–25, these claims recite an apparatus for performing the method of claims 5, 6, and 8. Al-Hilali discloses a machine-readable medium (see Fig. 1, #29 and 31) for performing a method that teaches claims 5, 6, and 8. Therefore, claims 23–25 are rejected for the same reasons given above.

### ***Response to Arguments***

Applicant's arguments filed 8/14/06 have been fully considered but they are not persuasive.

Regarding the drawing objections, the amendment corrected all deficiencies and the objections are withdrawn.

Regarding the rejection under 103.

As to Applicant arguments, (see page 10), Examiner has further elaborated such disclosures in the instant rejection.

***Conclusion***

36. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


37. Examiner would like to point out that any reference to specific figures, columns and lines should not be considered limiting in any way, the entire reference is considered to provide disclosure relating to the claimed invention.


38. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan C. Ochoa whose telephone number is (571) 272-2625. The examiner can normally be reached on 7:30AM - 4:00 PM.

39. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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40. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

\*\*\*  4/11/06

  
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TECHNOLOGY CENTER 2100 10/13/06